FIG. 1

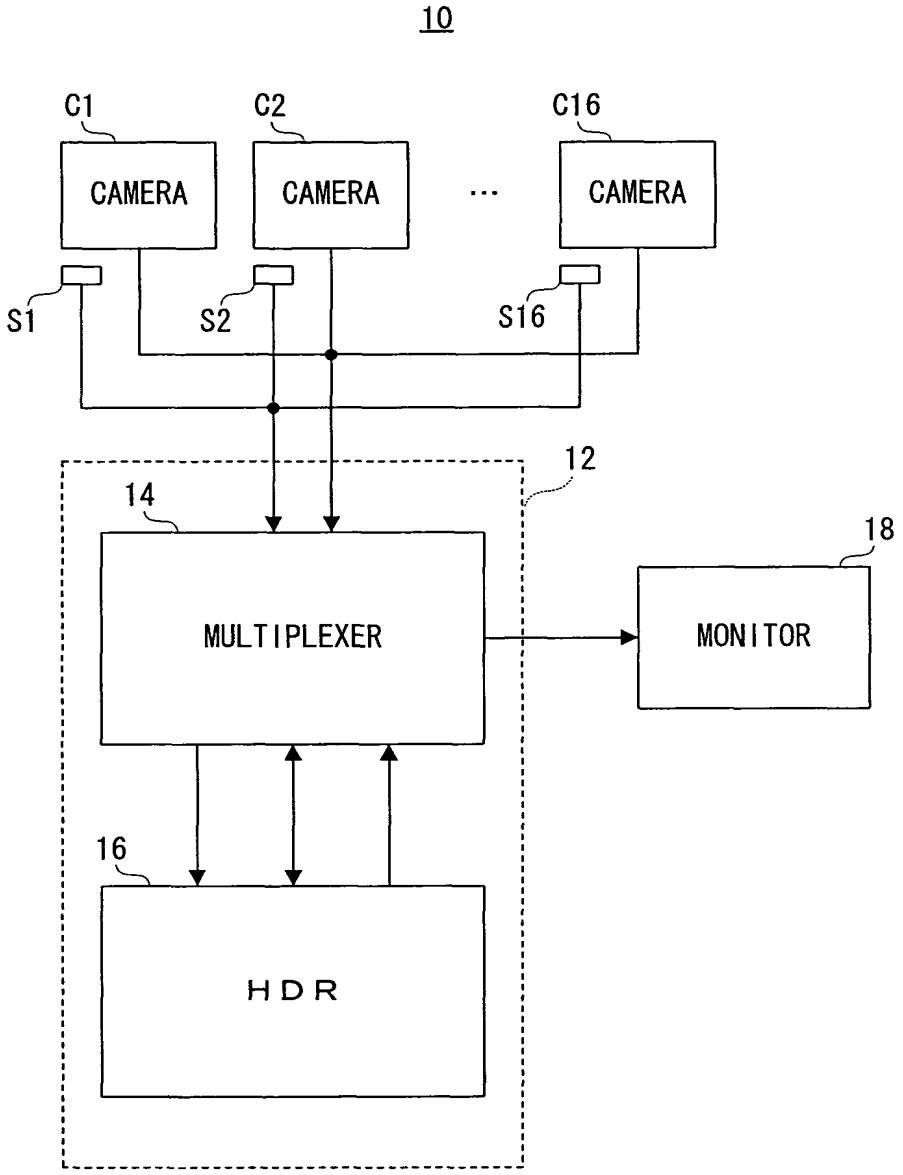

10
C1
C2
C16
CAMERA
CAMERA
...
CAMERA
S1
S2
S16
12
14
18
MULTIPLEXER
MONITOR
16
HDR

FIG. 2

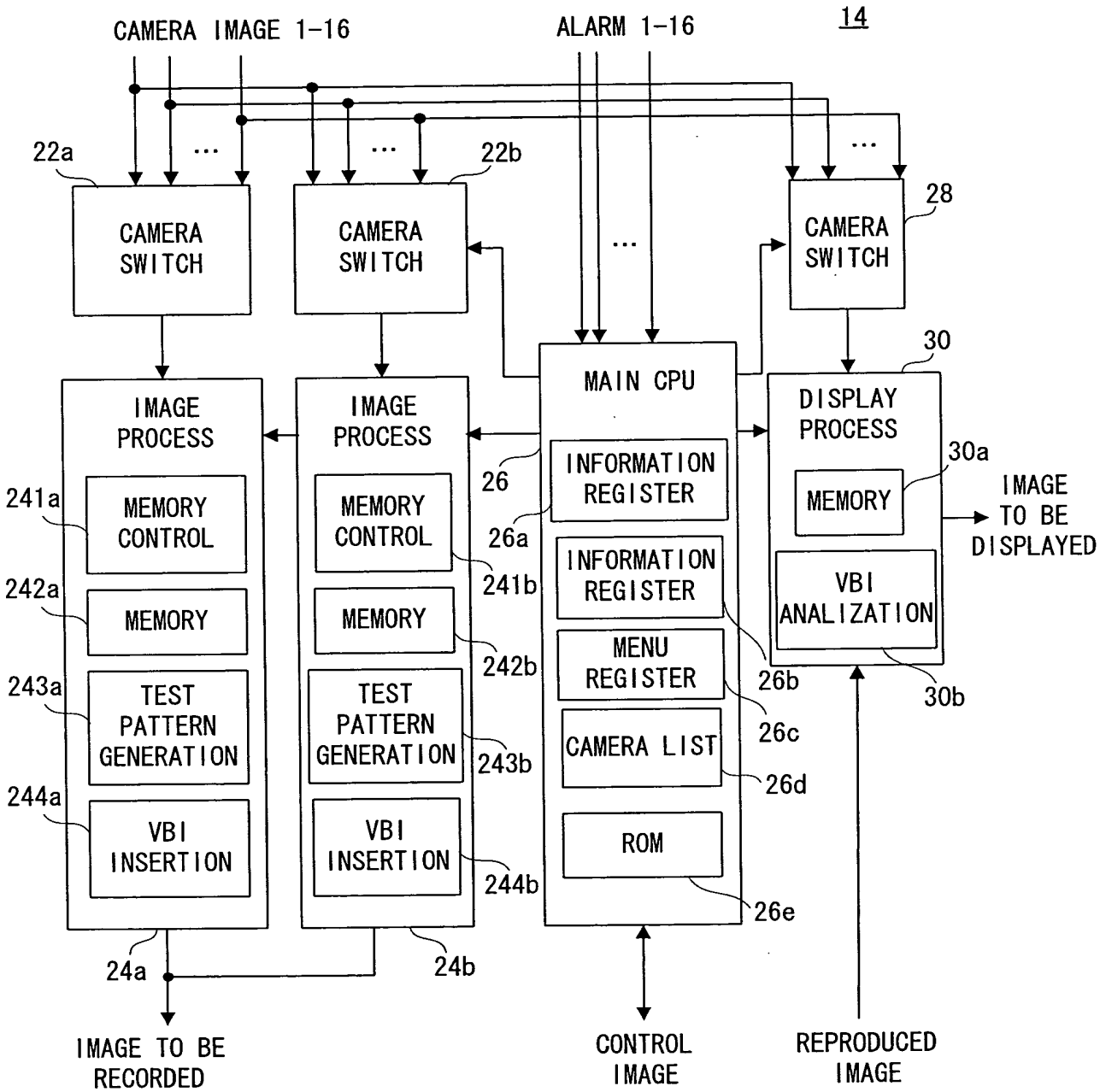

CAMERA IMAGE 1-16
ALARM 1-16
14
22a
22b
28
CAMERA SWITCH
CAMERA SWITCH
CAMERA SWITCH
30
IMAGE PROCESS
IMAGE PROCESS
MAIN CPU
DISPLAY PROCESS
241a
MEMORY CONTROL
241b
MEMORY CONTROL
26
INFORMATION REGISTER
26a
30a
MEMORY
IMAGE TO BE DISPLAYED
242a
MEMORY
242b
MEMORY
INFORMATION REGISTER
VBI ANALIZATION
243a
TEST PATTERN GENERATION
243b
TEST PATTERN GENERATION
MENU REGISTER
26b
26c
30b
CAMERA LIST
26d
244a
VBI INSERTION
244b
VBI INSERTION
ROM
26e
24a
24b
IMAGE TO BE RECORDED
CONTROL IMAGE
REPRODUCED IMAGE

FIG. 3

	FIELD	1	2	3	4	1
CAMERA SWITCH CIRCUIT 22a	OPERATION	CAMERA SWITCH				CAMERA SWITCH
IMAGE PROCESS CIRCUIT 24a	OPERATION	OUTPUT CAMERA IMAGE OR PATTERN IMAGE	STORE CAMERA IMAGE	STORE CAMERA IMAGE	OUTPUT PATTERN IMAGE	OUTPUT CAMERA IMAGE OR PATTERN IMAGE
	FIELD	3	4	1	2	3
CAMERA SWITCH CIRCUIT 22b	OPERATION	CAMERA SWITCH				
IMAGE PROCESS CIRCUIT 24b	OPERATION	STORE CAMERA IMAGE	OUTPUT PATTERN IMAGE	OUTPUT CAMERA IMAGE OR PATTERN IMAGE	STORE CAMERA IMAGE	STORE CAMERA IMAGE
FINAL OUTPUT		CAMERA IMAGE OR PATTERN IMAGE	PATTERN IMAGE	CAMERA IMAGE OR PATTERN IMAGE	PATTERN IMAGE	CAMERA IMAGE OR PATTERN IMAGE

FIG. 4

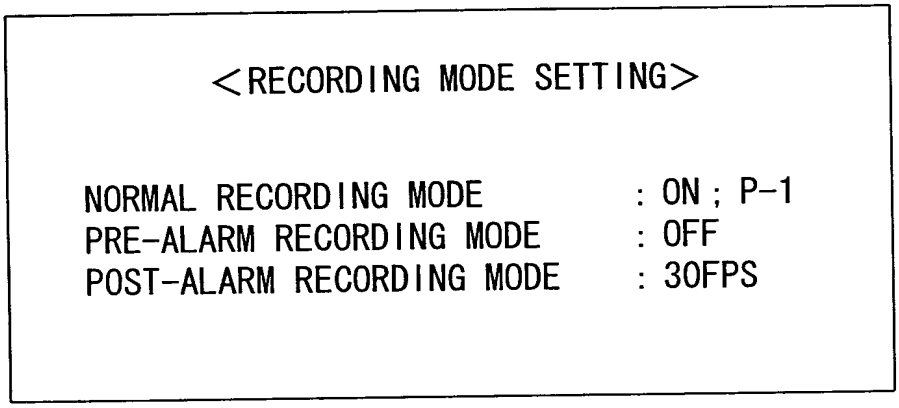

<RECORDING MODE SETTING>
NORMAL RECORDING MODE : ON ; P-1
PRE-ALARM RECORDING MODE : OFF
POST-ALARM RECORDING MODE : 30FPS

FIG. 5

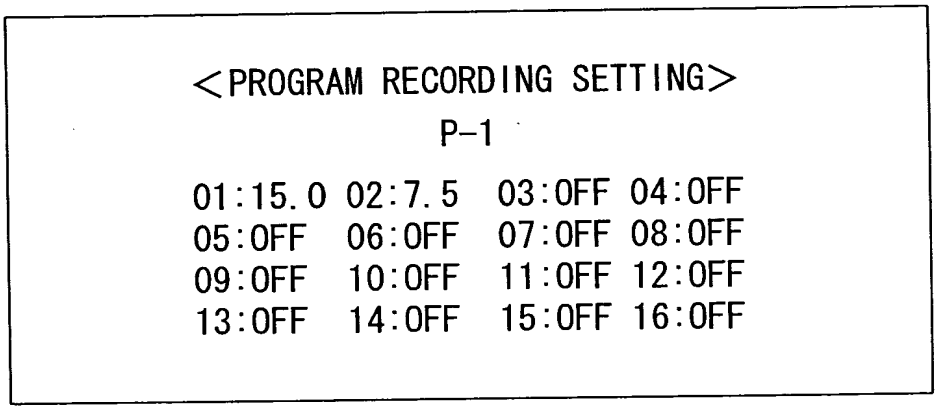

<PROGRAM RECORDING SETTING>
P-1
01:15.0 02:7.5 03:OFF 04:OFF
05:OFF 06:OFF 07:OFF 08:OFF
09:OFF 10:OFF 11:OFF 12:OFF
13:OFF 14:OFF 15:OFF 16:OFF

FIG. 6

CAMERA SWITCH 22a, IMAGE PROCESSING 24a	FIELD	1	2	3	4	1	2	3	4	1	2	3	4		
	SELECTED CAMERA	1	1	1	1	1	1	1	1	1	1	1	1		
	OUTPUT CANDIDATE	1/T			T	1/T			T	1/T			T		
CAMERA SWITCH 22b, IMAGE PROCESSING 24b	FIELD	3	4	1	2	3	4	1	2	3	4	1	2		
	SELECTED CAMERA	2	2	2	2	2	2	2	2	2	2	2	2		
	OUTPUT CANDIDATE		T	2/T			T	2/T			T	2/T			
FINAL OUTPUT		1	T	2	T	1	T	T	T	1	T	2	T		
VBI	RECORDING	1	0	1	0	1	0	0	0	1	0	1	0		
	PRE-ALARM	0	*	0	*	0	*	*	*	0	*	0	*		
	POST-ALARM	0	*	0	*	0	*	*	*	0	*	0	*		
	ID	1	*	2	*	1	*	*	*	1	*	2	*		

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1/T			T	1/T			T	1/T			T	1/T			T
3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	T	2/T			T	2/T			T	2/T			T	2/T	
1	T	T	T	1	T	2	T	1	T	T	T	1	T	2	T
1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0
0	*	*	*	0	*	0	*	0	*	*	*	0	*	0	*
0	*	*	*	0	*	0	*	0	*	*	*	0	*	0	*
1	*	*	*	1	*	2	*	1	*	*	*	1	*	2	*

T:TEST PATTERN IMAGE

FIG. 7

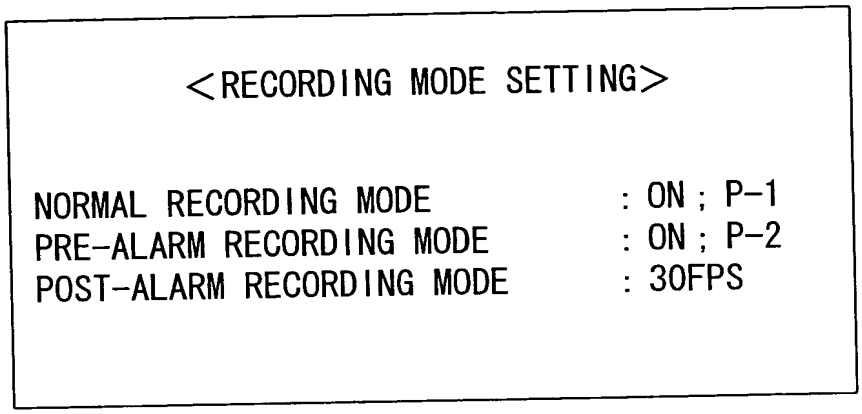


FIG. 8

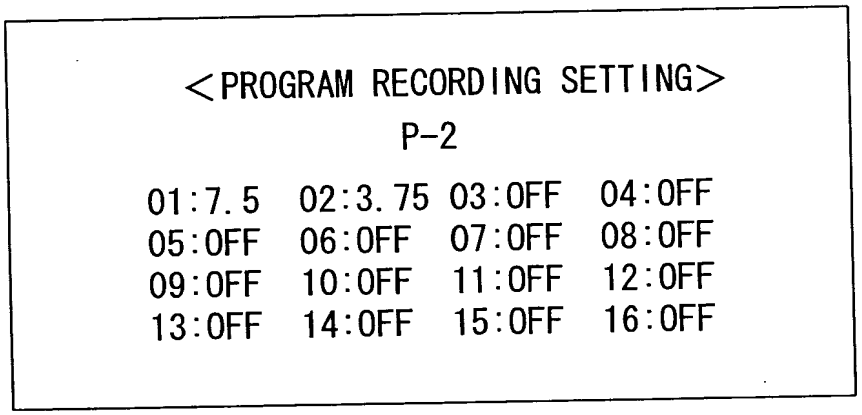


FIG. 9

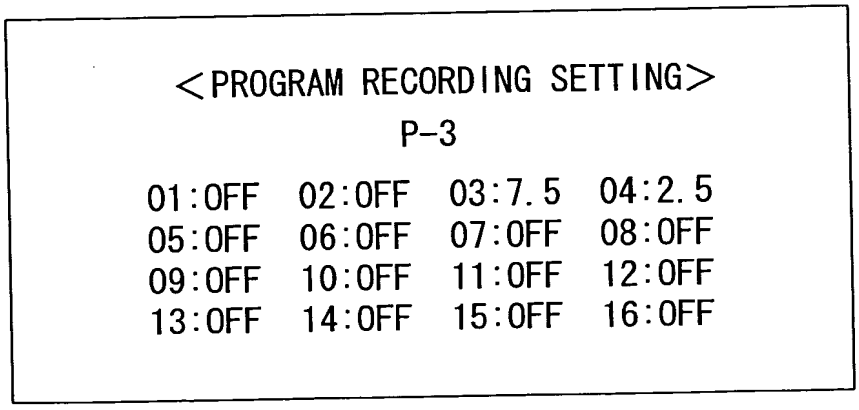


FIG. 10

CAMERA SWITCH 22a, IMAGE PROCESSING 24a	FIELD	1	2	3	4	1	2	3	4	1	2	3	4
	SELECTED CAMERA	1	1	1	1	2	2	2	2	1	1	1	1
	OUTPUT CANDIDATE	2/T			T	1/T			T	2/T			T
CAMERA SWITCH 22b, IMAGE PROCESSING 24b	FIELD	3	4	1	2	3	4	1	2	3	4	1	2
	SELECTED CAMERA	4	4	3	3	3	3	4	4	4	4	3	3
	OUTPUT CANDIDATE		T	4/T			T	3/T			T	4/T	
FINAL OUTPUT		2	T	4	T	1	T	3	T	T	T	T	T
VBI	RECORDING	1	0	1	0	1	0	1	0	0	0	0	0
	PRE-ALARM	0	*	1	*	0	*	1	*	*	*	*	*
	POST-ALARM	0	*	0	*	0	*	0	*	*	*	*	*
	ID	2	*	4	*	1	*	3	*	*	*	*	*

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1
1/T			T	2/T			T	1/T			T	2/T			T
3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
3	3	4	4	4	4	3	3	3	3	4	4	4	4	3	3
	T	3/T			T	4/T			T	3/T			T	4/T	
1	T	3	T	2	T	T	T	1	T	3	T	T	T	4	T
1	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0
0	*	1	*	0	*	*	*	0	*	1	*	*	*	1	*
0	*	0	*	0	*	*	*	0	*	0	*	*	*	0	*
1	*	3	*	2	*	*	*	1	*	3	*	*	*	4	*

T:TEST PATTERN IMAGE

FIG. 11

CAMERA SWITCH 22a, IMAGE PROCESSING 24a	FIELD	1	2	3	4	1	2	3	4	1	2	3	4
	SELECTED CAMERA	5	5	5	5	5	5	5	5	5	5	5	5
	OUTPUT CANDIDATE	5/T			T	5/T			T	5/T			T
CAMERA SWITCH 22b, IMAGE PROCESSING 24b	FIELD	3	4	1	2	3	4	1	2	3	4	1	2
	SELECTED CAMERA	5	5	5	5	5	5	5	5	5	5	5	5
	OUTPUT CANDIDATE		T	5/T			T	5/T			T	5/T	
FINAL OUTPUT		5	T	5	T	5	T	5	T	5	T	5	T
VBI	RECORDING	1	0	1	0	1	0	1	0	1	0	1	0
	PRE-ALARM	0	*	0	*	0	*	0	*	0	*	0	*
	POST-ALARM	1	1	1	1	1	1	1	1	1	1	1	1
	ID	5	*	5	*	5	*	5	*	5	*	5	*

1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5/T			T	5/T			T	5/T			T	5/T			T
3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
5	5	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	T	5/T			T	8/T			T	8/T			T	8/T	
5	T	5	T	5	T	8	T	5	T	8	T	5	T	8	T
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
0	*	0	*	0	*	0	*	0	*	0	*	0	*	0	*
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	*	5	*	5	*	8	*	5	*	8	*	5	*	8	*

T:TEST PATTERN IMAGE

FIG. 12

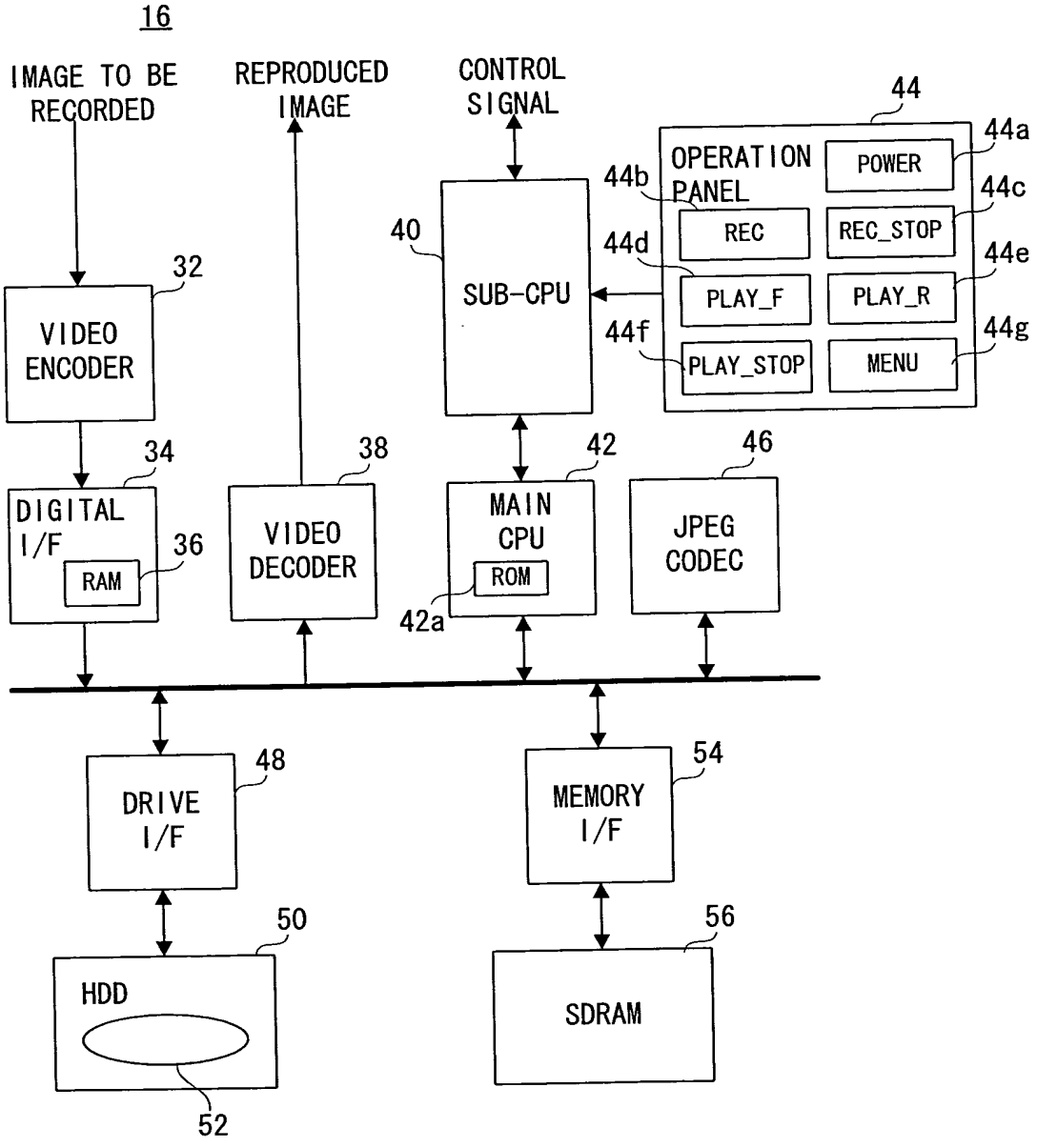

16
IMAGE TO BE RECORDED
REPRODUCED IMAGE
CONTROL SIGNAL
44
OPERATION PANEL
POWER
REC
REC_STOP
PLAY_F
PLAY_R
PLAY_STOP
MENU
44a
44b
44c
44d
44e
44f
44g
40
SUB-CPU
32
VIDEO ENCODER
34
DIGITAL I/F
RAM
36
38
VIDEO DECODER
42
MAIN CPU
ROM
42a
46
JPEG CODEC
48
DRIVE I/F
50
HDD
52
54
MEMORY I/F
56
SDRAM

FIG. 13

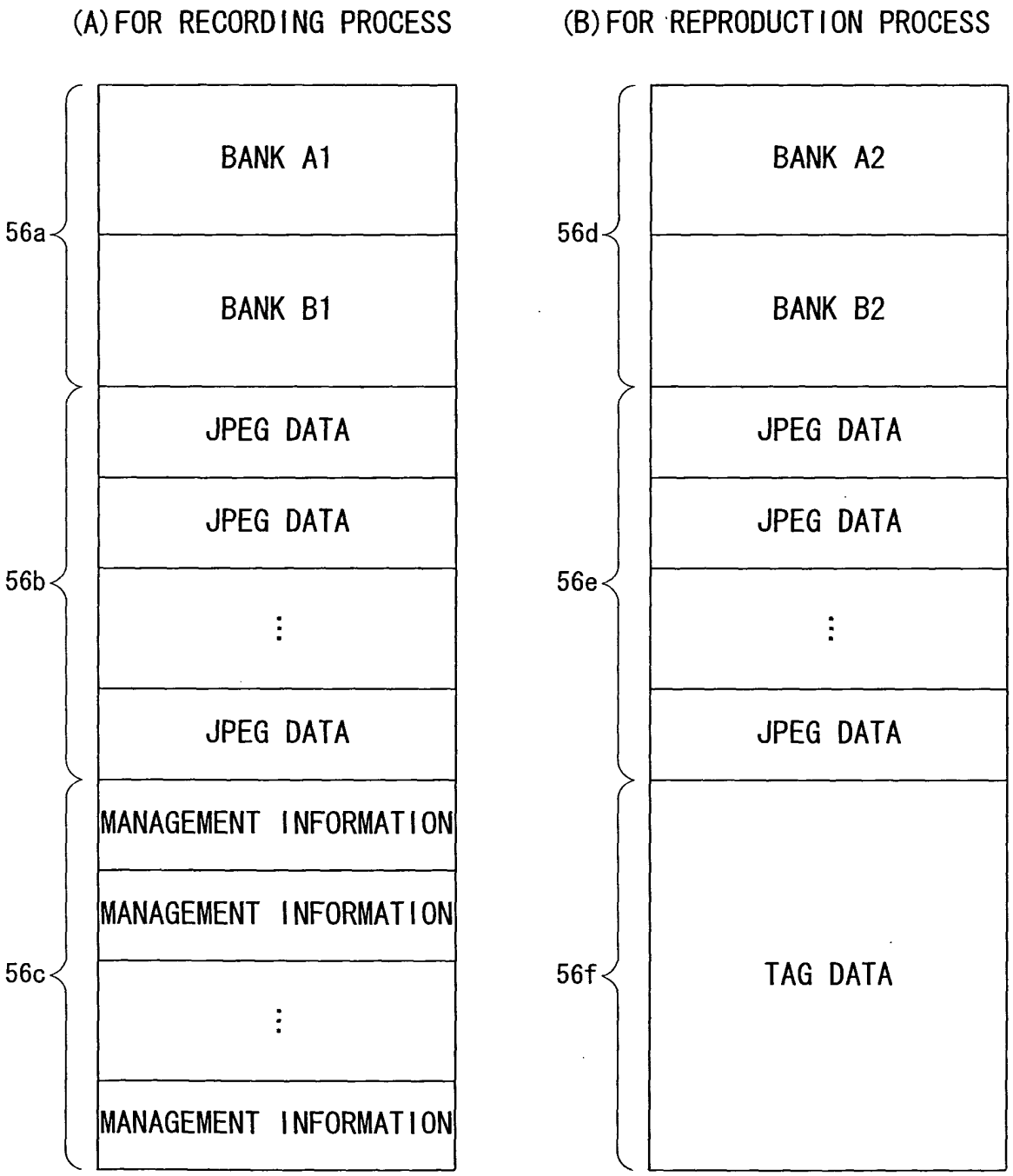

(A) FOR RECORDING PROCESS
(B) FOR REPRODUCTION PROCESS
56a
56b
56c
56d
56e
56f
BANK A1
BANK B1
JPEG DATA
JPEG DATA
JPEG DATA
MANAGEMENT INFORMATION
MANAGEMENT INFORMATION
MANAGEMENT INFORMATION
BANK A2
BANK B2
JPEG DATA
JPEG DATA
JPEG DATA
TAG DATA

FIG. 14

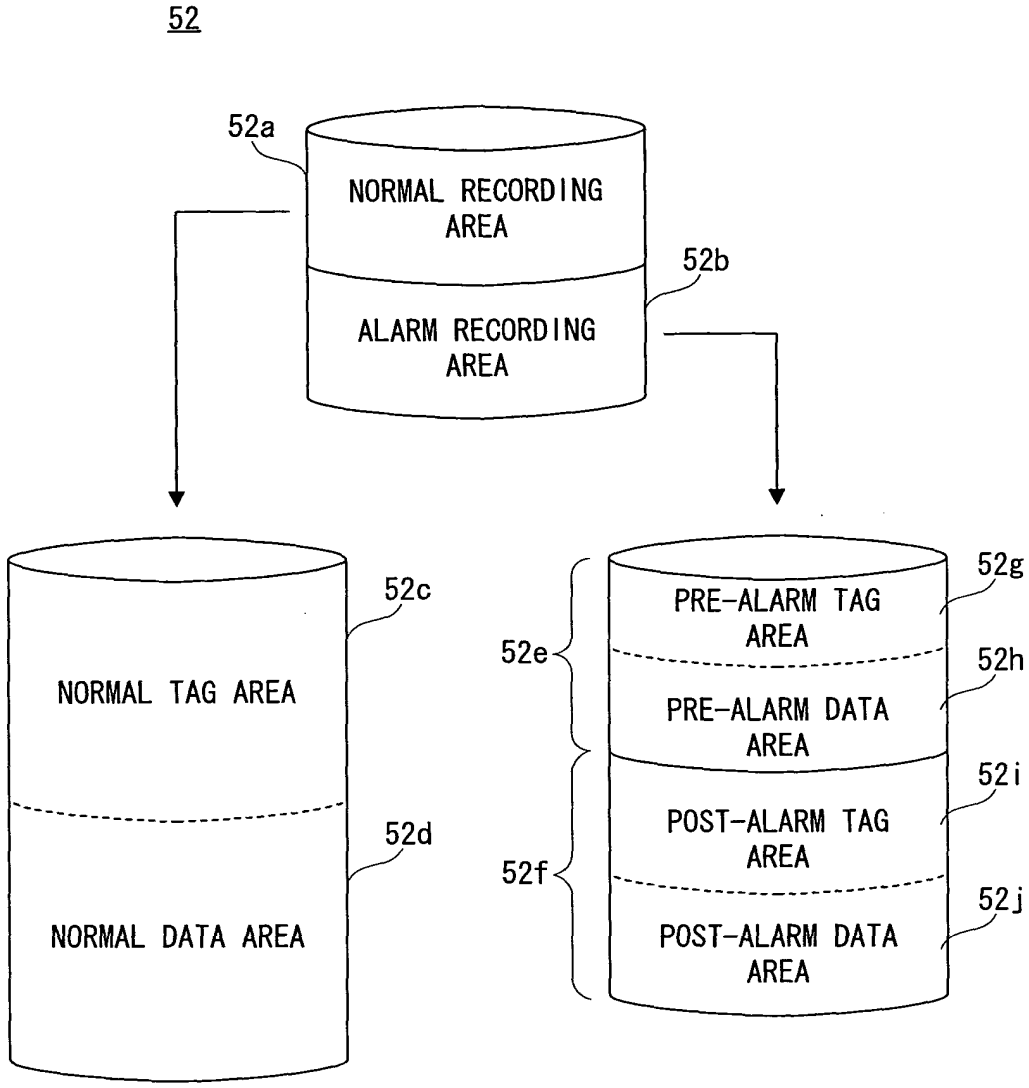

52
52a
NORMAL RECORDING AREA
52b
ALARM RECORDING AREA
NORMAL TAG AREA
52c
NORMAL DATA AREA
52d
52e
PRE-ALARM TAG AREA
52g
PRE-ALARM DATA AREA
52h
52f
POST-ALARM TAG AREA
52i
POST-ALARM DATA AREA
52j

FIG. 15

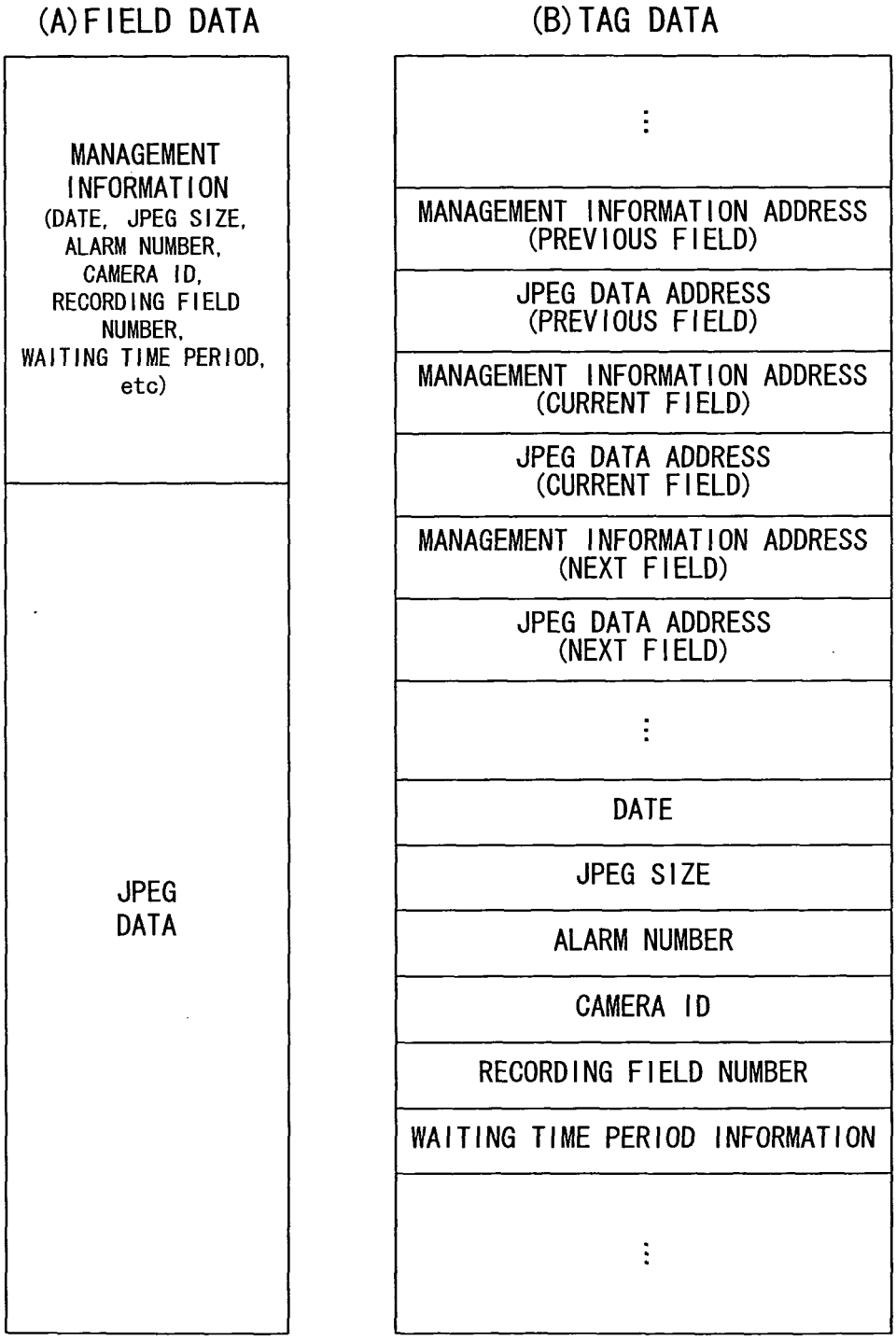

(A) FIELD DATA
MANAGEMENT INFORMATION (DATE, JPEG SIZE, ALARM NUMBER, CAMERA ID, RECORDING FIELD NUMBER, WAITING TIME PERIOD, etc)
JPEG DATA
(B) TAG DATA
MANAGEMENT INFORMATION ADDRESS (PREVIOUS FIELD)
JPEG DATA ADDRESS (PREVIOUS FIELD)
MANAGEMENT INFORMATION ADDRESS (CURRENT FIELD)
JPEG DATA ADDRESS (CURRENT FIELD)
MANAGEMENT INFORMATION ADDRESS (NEXT FIELD)
JPEG DATA ADDRESS (NEXT FIELD)
DATE
JPEG SIZE
ALARM NUMBER
CAMERA ID
RECORDING FIELD NUMBER
WAITING TIME PERIOD INFORMATION

FIG. 16

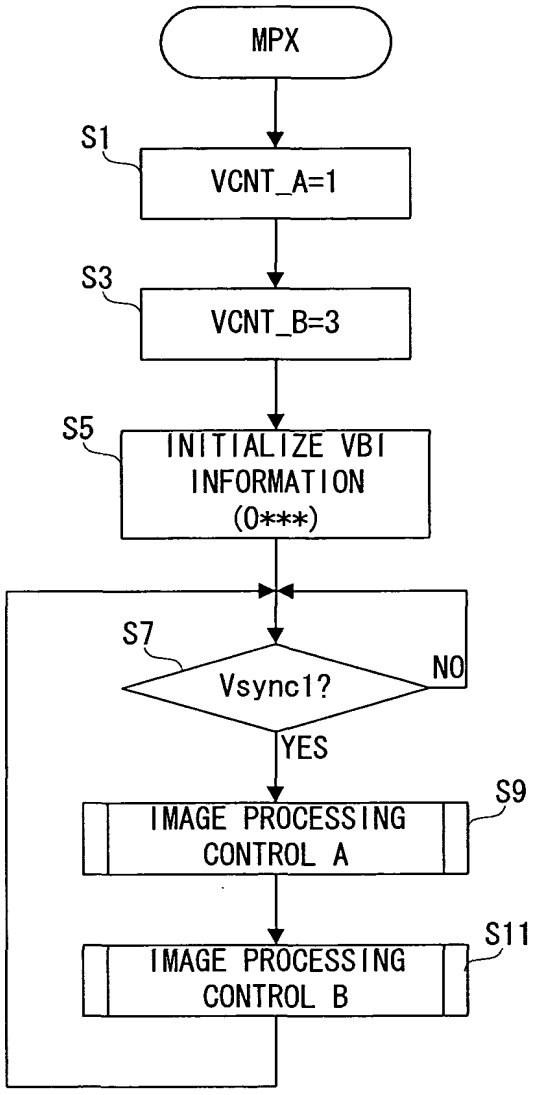

MPX
S1
VCNT_A=1
S3
VCNT_B=3
S5
INITIALIZE VBI INFORMATION (0***)
S7
Vsync1?
NO
YES
S9
IMAGE PROCESSING CONTROL A
S11
IMAGE PROCESSING CONTROL B

FIG. 17

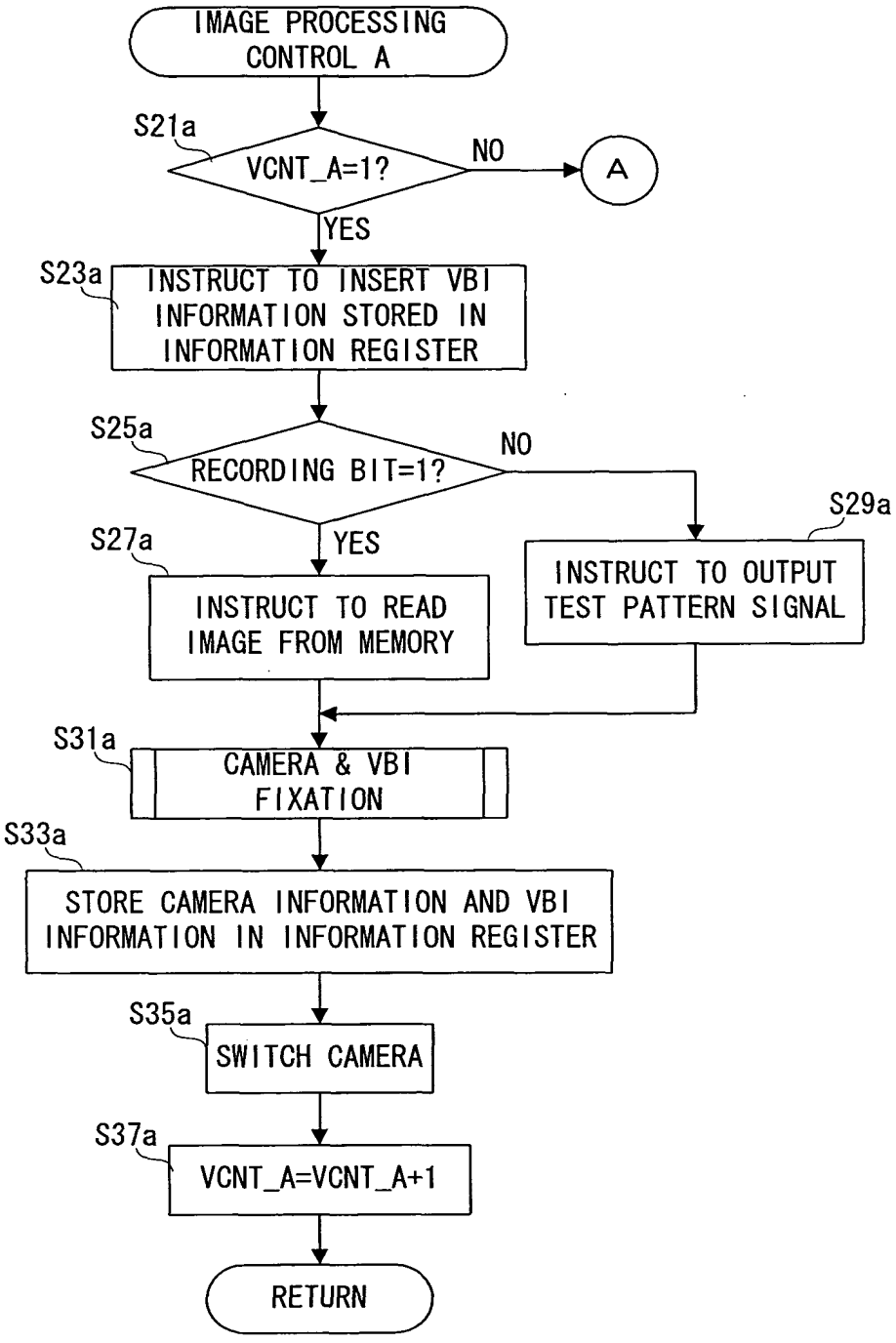


IMAGE PROCESSING CONTROL A
S21a
VCNT_A=1?
NO
A
YES
S23a
INSTRUCT TO INSERT VBI INFORMATION STORED IN INFORMATION REGISTER
S25a
RECORDING BIT=1?
NO
YES
S27a
INSTRUCT TO READ IMAGE FROM MEMORY
S29a
INSTRUCT TO OUTPUT TEST PATTERN SIGNAL
S31a
CAMERA & VBI FIXATION
S33a
STORE CAMERA INFORMATION AND VBI INFORMATION IN INFORMATION REGISTER
S35a
SWITCH CAMERA
S37a
VCNT_A=VCNT_A+1
RETURN

FIG. 18

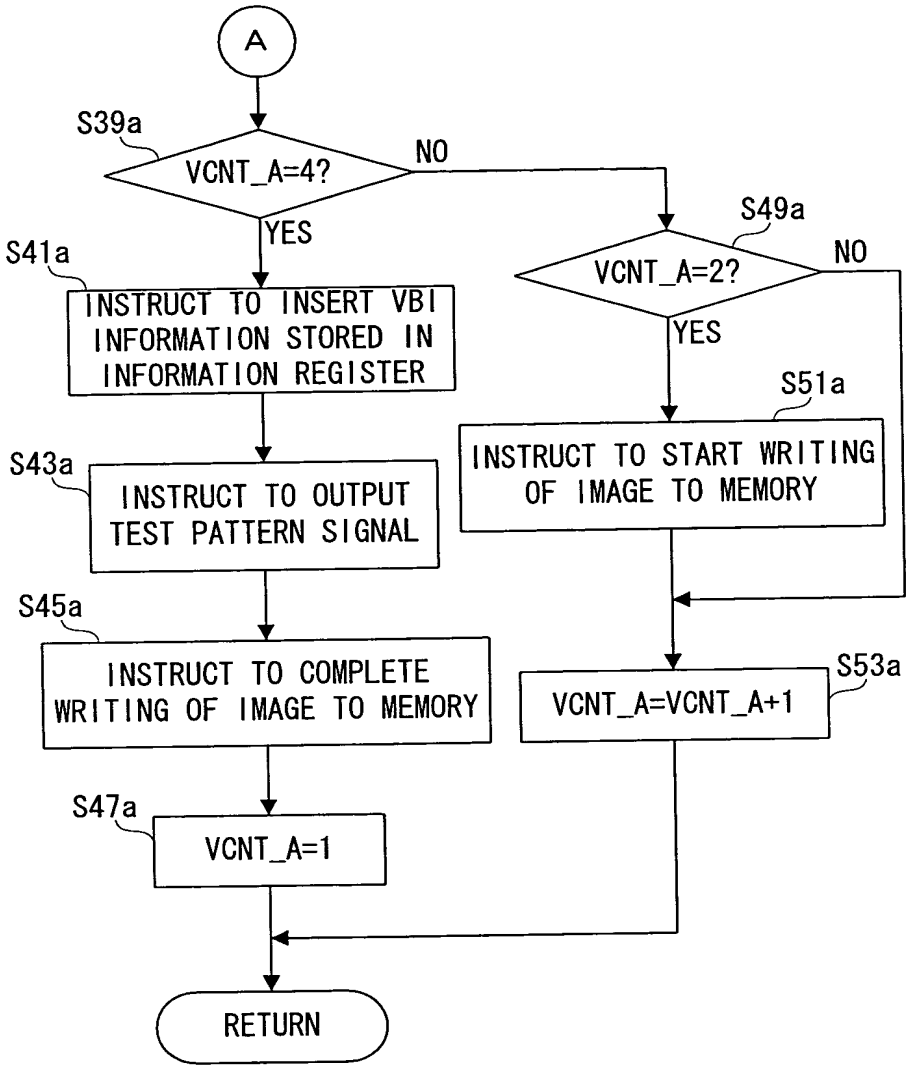

A
S39a
VCNT_A=4?
NO
YES
S41a
INSTRUCT TO INSERT VBI INFORMATION STORED IN INFORMATION REGISTER
S43a
INSTRUCT TO OUTPUT TEST PATTERN SIGNAL
S45a
INSTRUCT TO COMPLETE WRITING OF IMAGE TO MEMORY
S47a
VCNT_A=1
S49a
VCNT_A=2?
NO
YES
S51a
INSTRUCT TO START WRITING OF IMAGE TO MEMORY
S53a
VCNT_A=VCNT_A+1
RETURN

FIG. 19

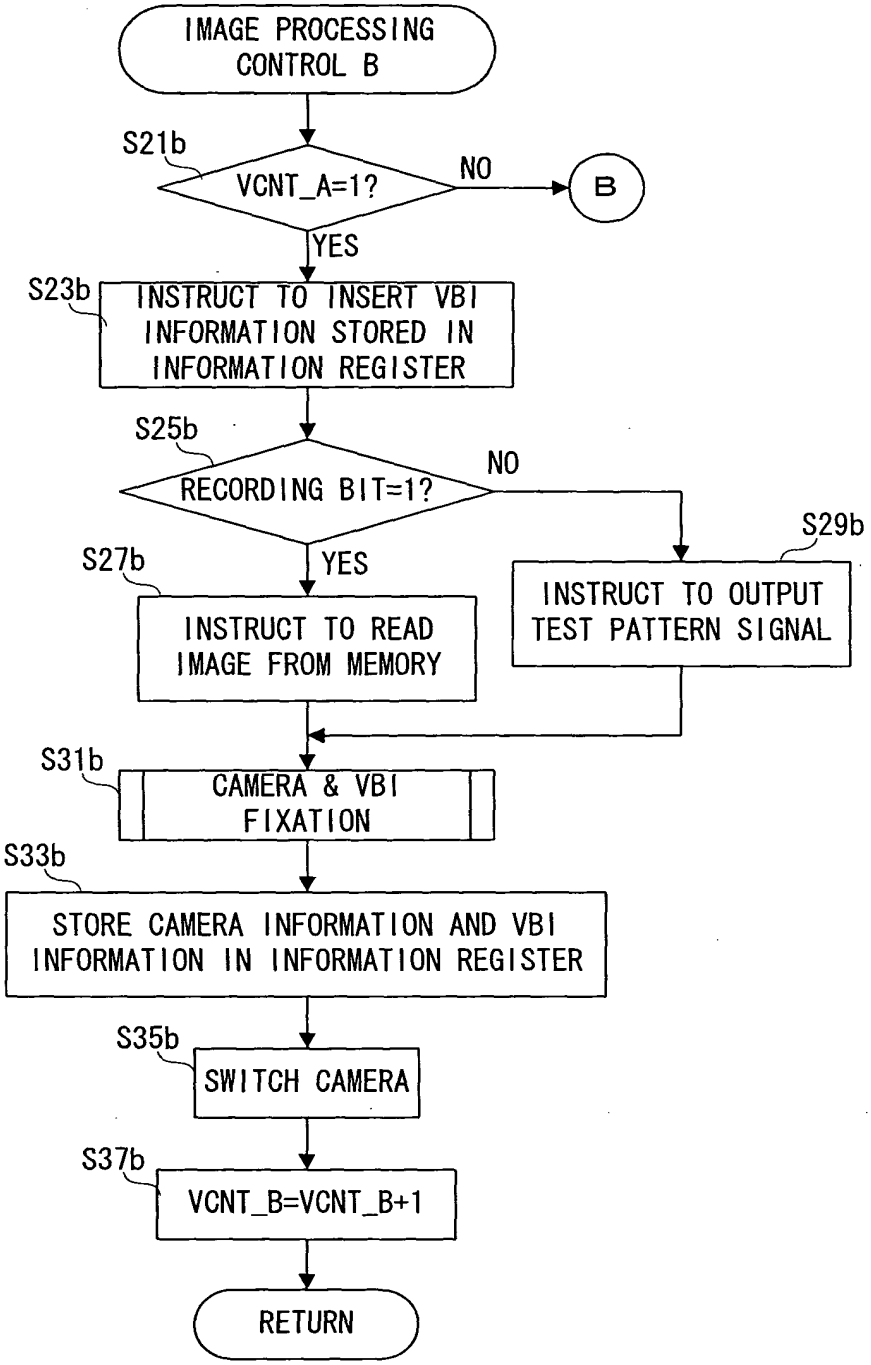


IMAGE PROCESSING CONTROL B
S21b
VCNT_A=1?
NO
B
YES
S23b
INSTRUCT TO INSERT VBI INFORMATION STORED IN INFORMATION REGISTER
S25b
RECORDING BIT=1?
NO
S29b
INSTRUCT TO OUTPUT TEST PATTERN SIGNAL
S27b
YES
INSTRUCT TO READ IMAGE FROM MEMORY
S31b
CAMERA & VBI FIXATION
S33b
STORE CAMERA INFORMATION AND VBI INFORMATION IN INFORMATION REGISTER
S35b
SWITCH CAMERA
S37b
VCNT_B=VCNT_B+1
RETURN

FIG. 20

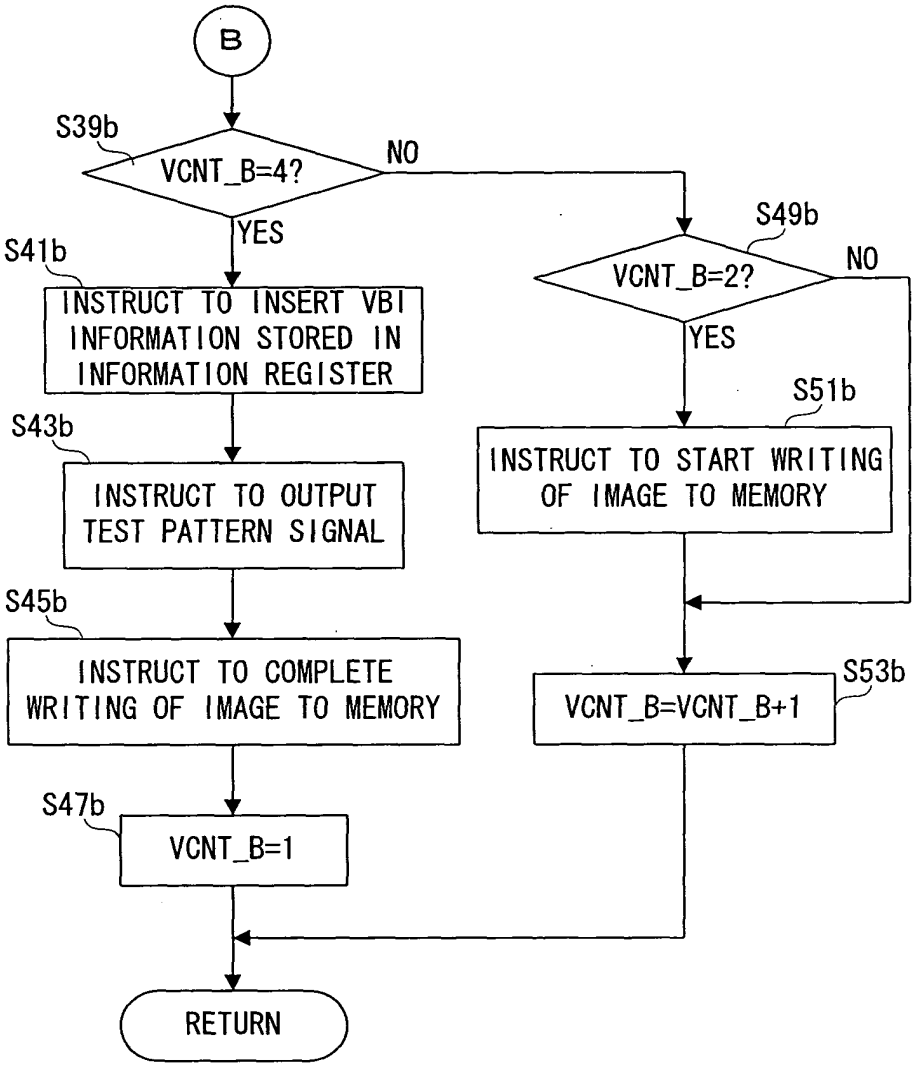

B
S39b
VCNT_B=4?
NO
YES
S41b
INSTRUCT TO INSERT VBI INFORMATION STORED IN INFORMATION REGISTER
S43b
INSTRUCT TO OUTPUT TEST PATTERN SIGNAL
S45b
INSTRUCT TO COMPLETE WRITING OF IMAGE TO MEMORY
S47b
VCNT_B=1
S49b
VCNT_B=2?
NO
YES
S51b
INSTRUCT TO START WRITING OF IMAGE TO MEMORY
S53b
VCNT_B=VCNT_B+1
RETURN

FIG. 21

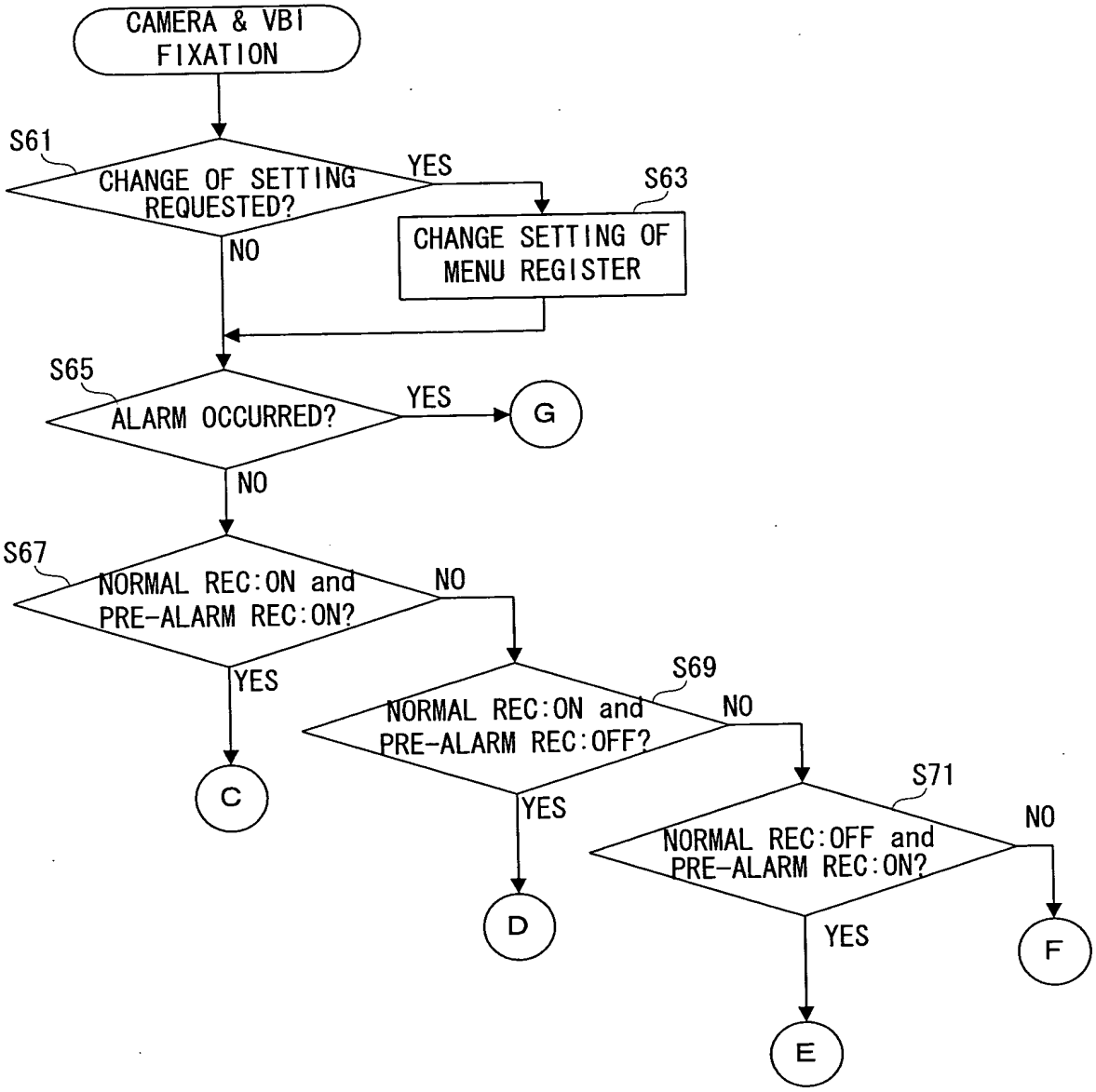

CAMERA & VBI FIXATION
S61
CHANGE OF SETTING REQUESTED?
YES
S63
CHANGE SETTING OF MENU REGISTER
NO
S65
ALARM OCCURRED?
YES
G
NO
S67
NORMAL REC:ON and PRE-ALARM REC:ON?
NO
YES
S69
NORMAL REC:ON and PRE-ALARM REC:OFF?
NO
YES
S71
NORMAL REC:OFF and PRE-ALARM REC:ON?
NO
YES
C
D
E
F

FIG. 22

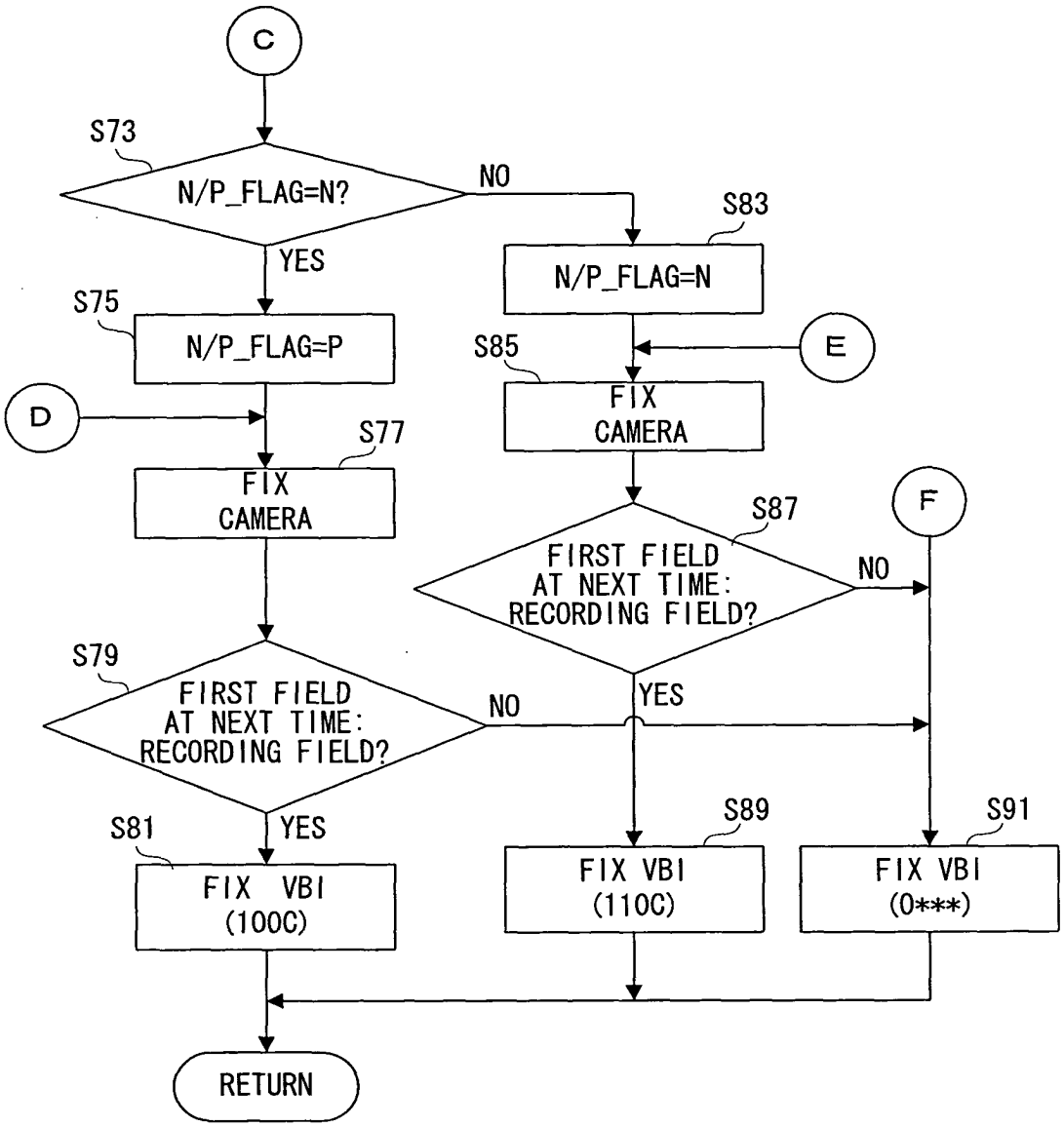

C
S73
N/P_FLAG=N?
NO
S83
N/P_FLAG=N
YES
S75
N/P_FLAG=P
E
S85
FIX CAMERA
D
S77
FIX CAMERA
F
S87
FIRST FIELD AT NEXT TIME: RECORDING FIELD?
NO
S79
FIRST FIELD AT NEXT TIME: RECORDING FIELD?
NO
YES
YES
S81
FIX VBI (100C)
S89
FIX VBI (110C)
S91
FIX VBI (0***)
RETURN

FIG. 23

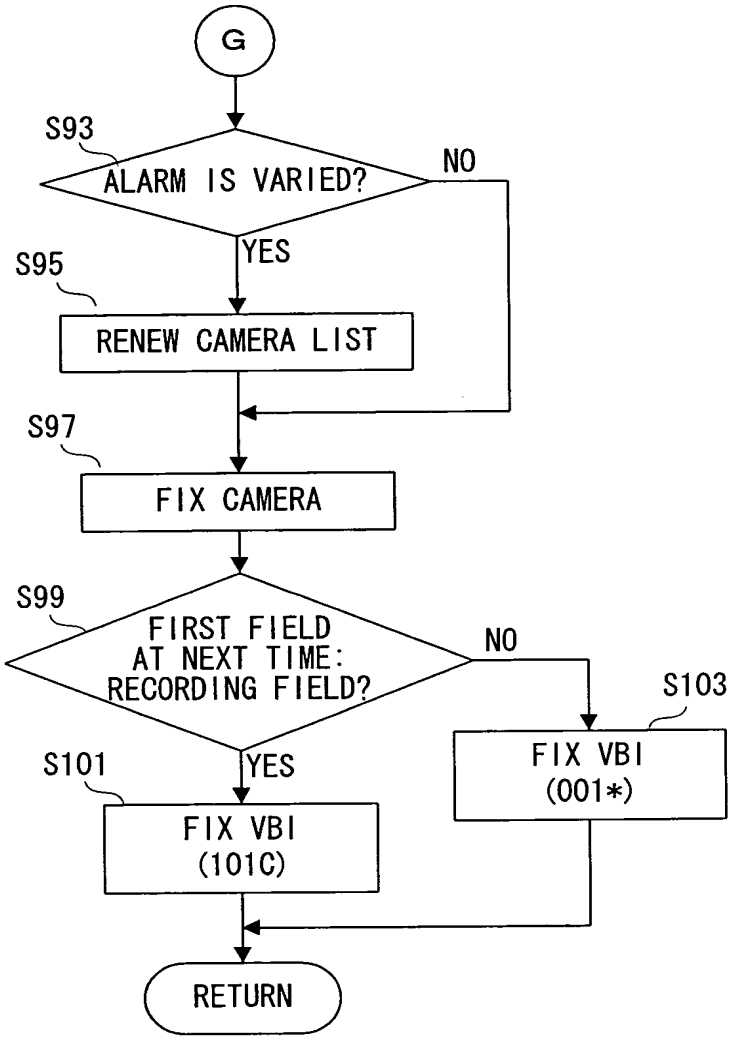

G
S93
ALARM IS VARIED?
NO
YES
S95
RENEW CAMERA LIST
S97
FIX CAMERA
S99
FIRST FIELD AT NEXT TIME: RECORDING FIELD?
NO
S103
FIX VBI (001*)
S101
YES
FIX VBI (101C)
RETURN

FIG. 24

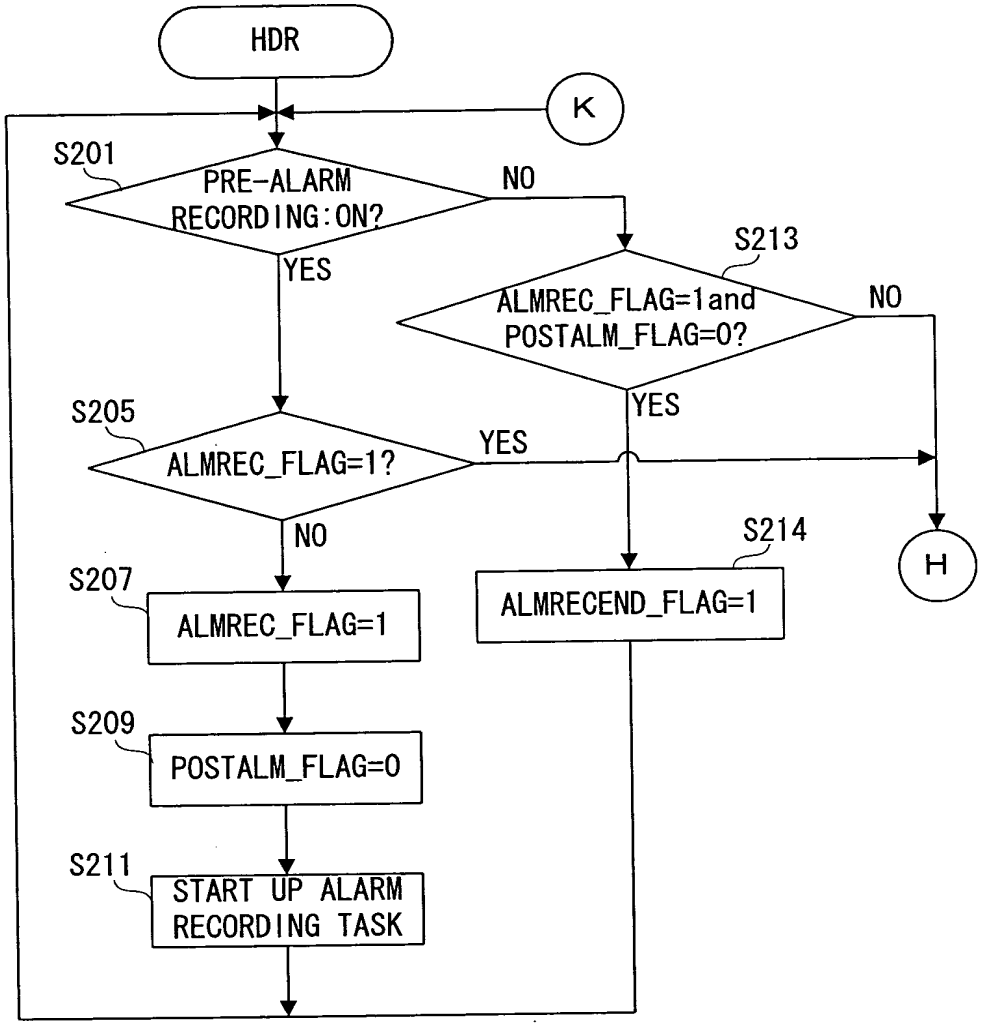

HDR
K
S201
PRE-ALARM RECORDING:ON?
NO
YES
S213
ALMREC_FLAG=1and POSTALM_FLAG=0?
NO
YES
S205
ALMREC_FLAG=1?
YES
NO
S214
H
S207
ALMREC_FLAG=1
ALMRECEND_FLAG=1
S209
POSTALM_FLAG=0
S211
START UP ALARM RECORDING TASK

FIG. 25

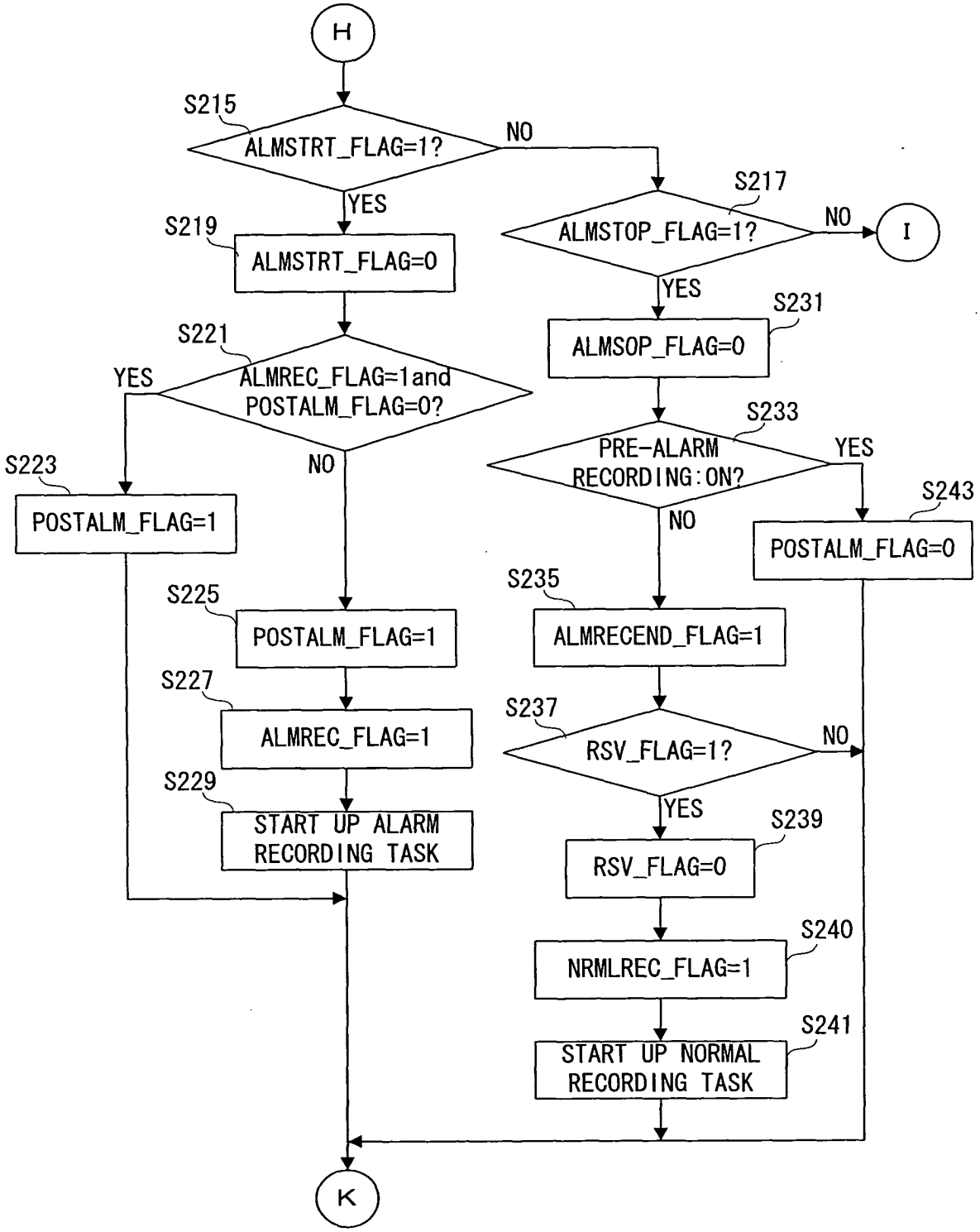

H
S215
ALMSTRT_FLAG=1?
NO
YES
S219
ALMSTRT_FLAG=0
S221
ALMREC_FLAG=1and POSTALM_FLAG=0?
YES
NO
S223
POSTALM_FLAG=1
S225
POSTALM_FLAG=1
S227
ALMREC_FLAG=1
S229
START UP ALARM RECORDING TASK
S217
ALMSTOP_FLAG=1?
NO
I
YES
S231
ALMSOP_FLAG=0
S233
PRE-ALARM RECORDING:ON?
YES
NO
S243
POSTALM_FLAG=0
S235
ALMRECEND_FLAG=1
S237
RSV_FLAG=1?
NO
YES
S239
RSV_FLAG=0
S240
NRMLREC_FLAG=1
S241
START UP NORMAL RECORDING TASK
K

FIG. 26

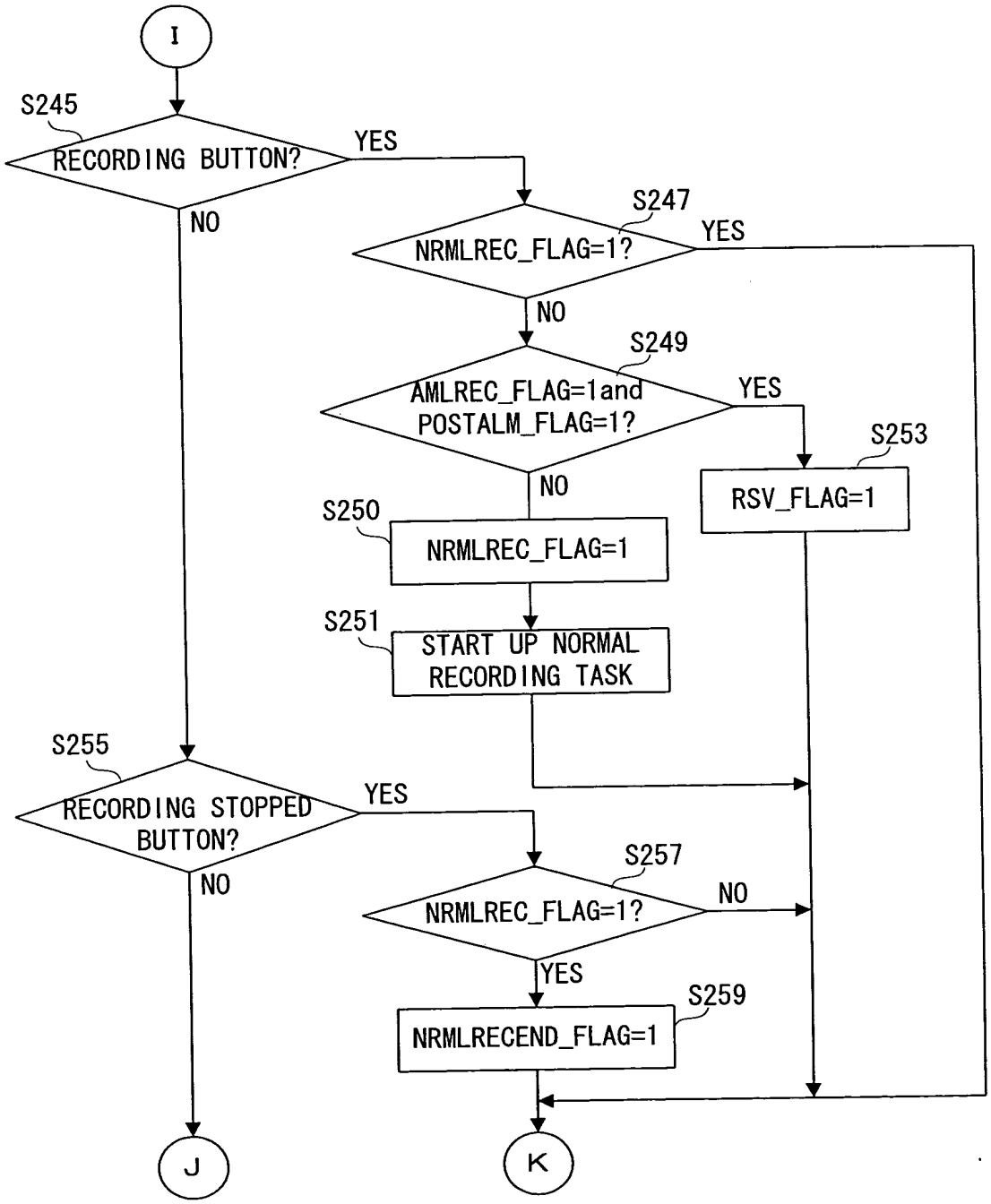

I
S245
RECORDING BUTTON?
YES
NO
S247
NRMLREC_FLAG=1?
YES
NO
S249
AMLREC_FLAG=1and
POSTALM_FLAG=1?
YES
NO
S253
RSV_FLAG=1
S250
NRMLREC_FLAG=1
S251
START UP NORMAL
RECORDING TASK
S255
RECORDING STOPPED
BUTTON?
YES
NO
S257
NRMLREC_FLAG=1?
NO
YES
S259
NRMLRECEND_FLAG=1
J
K

FIG. 27

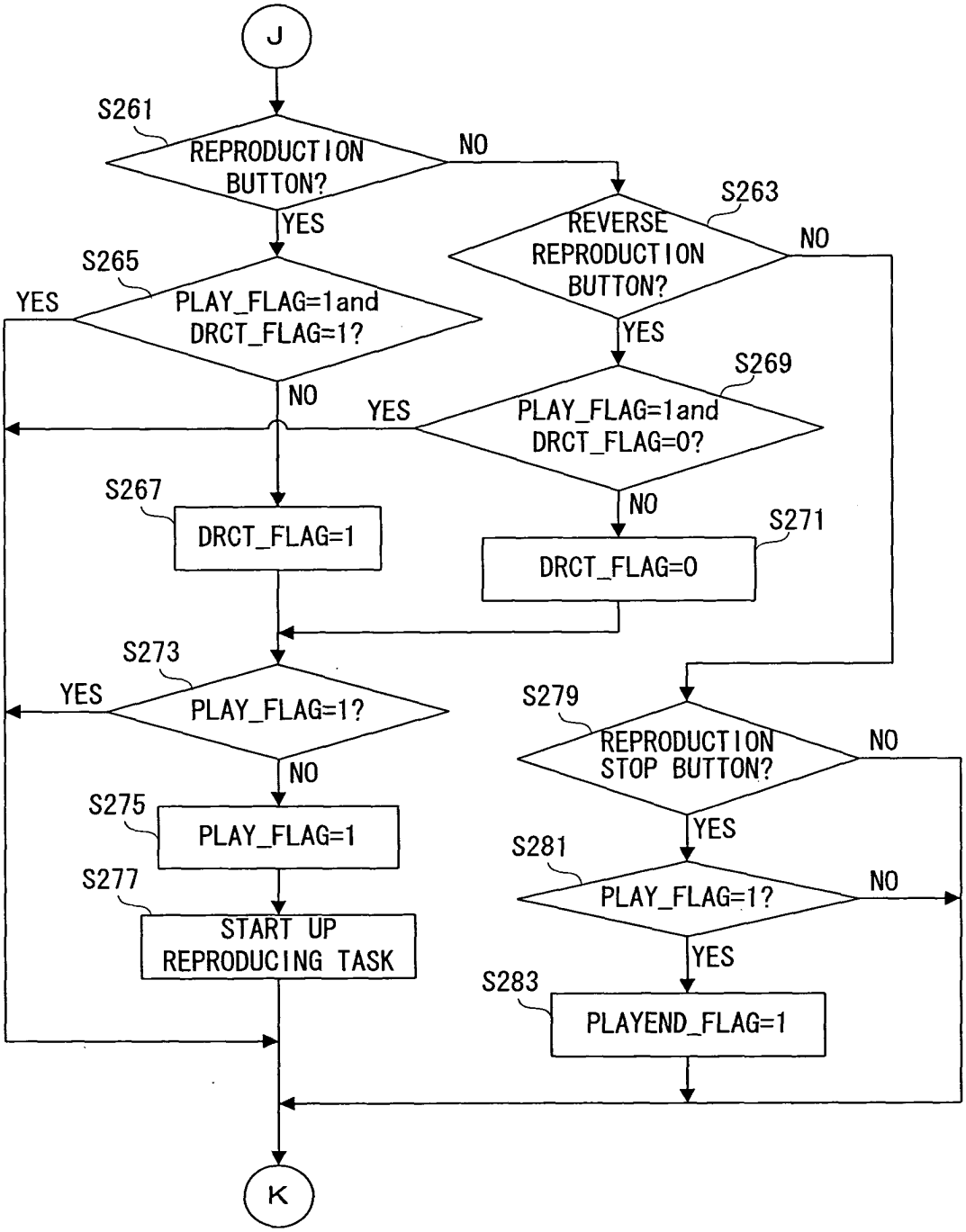

J
S261
REPRODUCTION BUTTON?
NO
YES
S263
REVERSE REPRODUCTION BUTTON?
NO
YES
S265
PLAY_FLAG=1and DRCT_FLAG=1?
YES
NO
S269
PLAY_FLAG=1and DRCT_FLAG=0?
YES
NO
S267
DRCT_FLAG=1
S271
DRCT_FLAG=0
S273
PLAY_FLAG=1?
YES
NO
S275
PLAY_FLAG=1
S277
START UP REPRODUCING TASK
S279
REPRODUCTION STOP BUTTON?
NO
YES
S281
PLAY_FLAG=1?
NO
YES
S283
PLAYEND_FLAG=1
K

FIG. 28

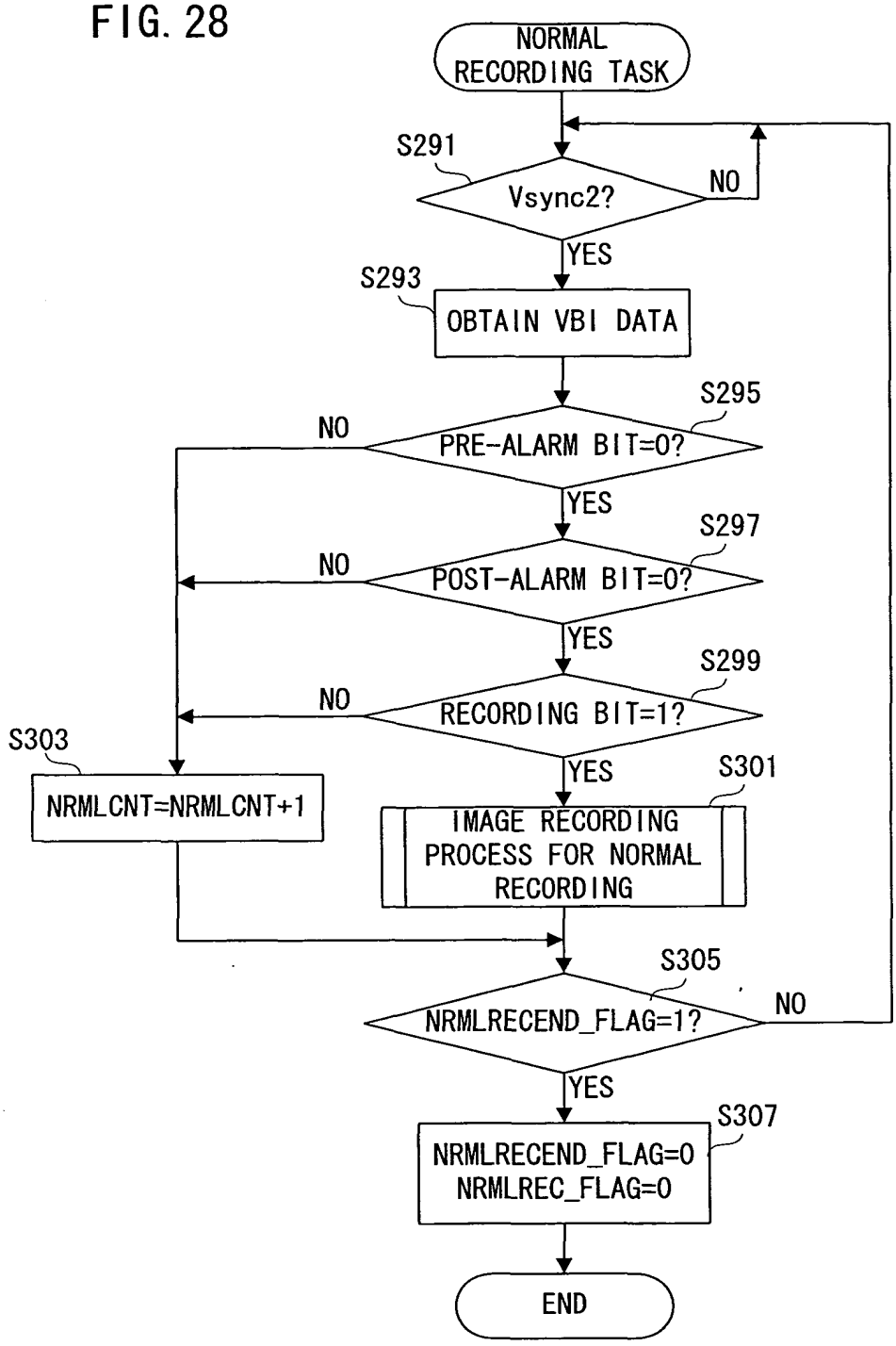

NORMAL RECORDING TASK
S291
Vsync2?
NO
YES
S293
OBTAIN VBI DATA
S295
PRE-ALARM BIT=0?
NO
YES
S297
POST-ALARM BIT=0?
NO
YES
S299
RECORDING BIT=1?
NO
YES
S303
NRMLCNT=NRMLCNT+1
S301
IMAGE RECORDING PROCESS FOR NORMAL RECORDING
S305
NRMLRECEND_FLAG=1?
NO
YES
S307
NRMLRECEND_FLAG=0
NRMLREC_FLAG=0
END

FIG. 29

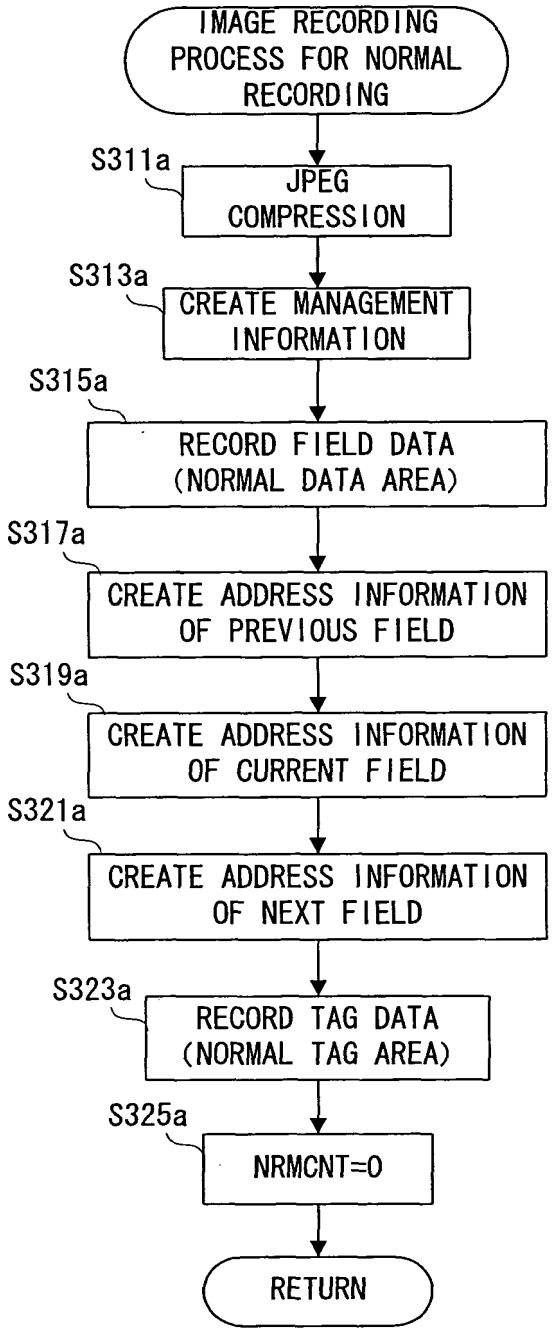


IMAGE RECORDING PROCESS FOR NORMAL RECORDING
S311a
JPEG COMPRESSION
S313a
CREATE MANAGEMENT INFORMATION
S315a
RECORD FIELD DATA (NORMAL DATA AREA)
S317a
CREATE ADDRESS INFORMATION OF PREVIOUS FIELD
S319a
CREATE ADDRESS INFORMATION OF CURRENT FIELD
S321a
CREATE ADDRESS INFORMATION OF NEXT FIELD
S323a
RECORD TAG DATA (NORMAL TAG AREA)
S325a
NRMCNT=0
RETURN

FIG. 30

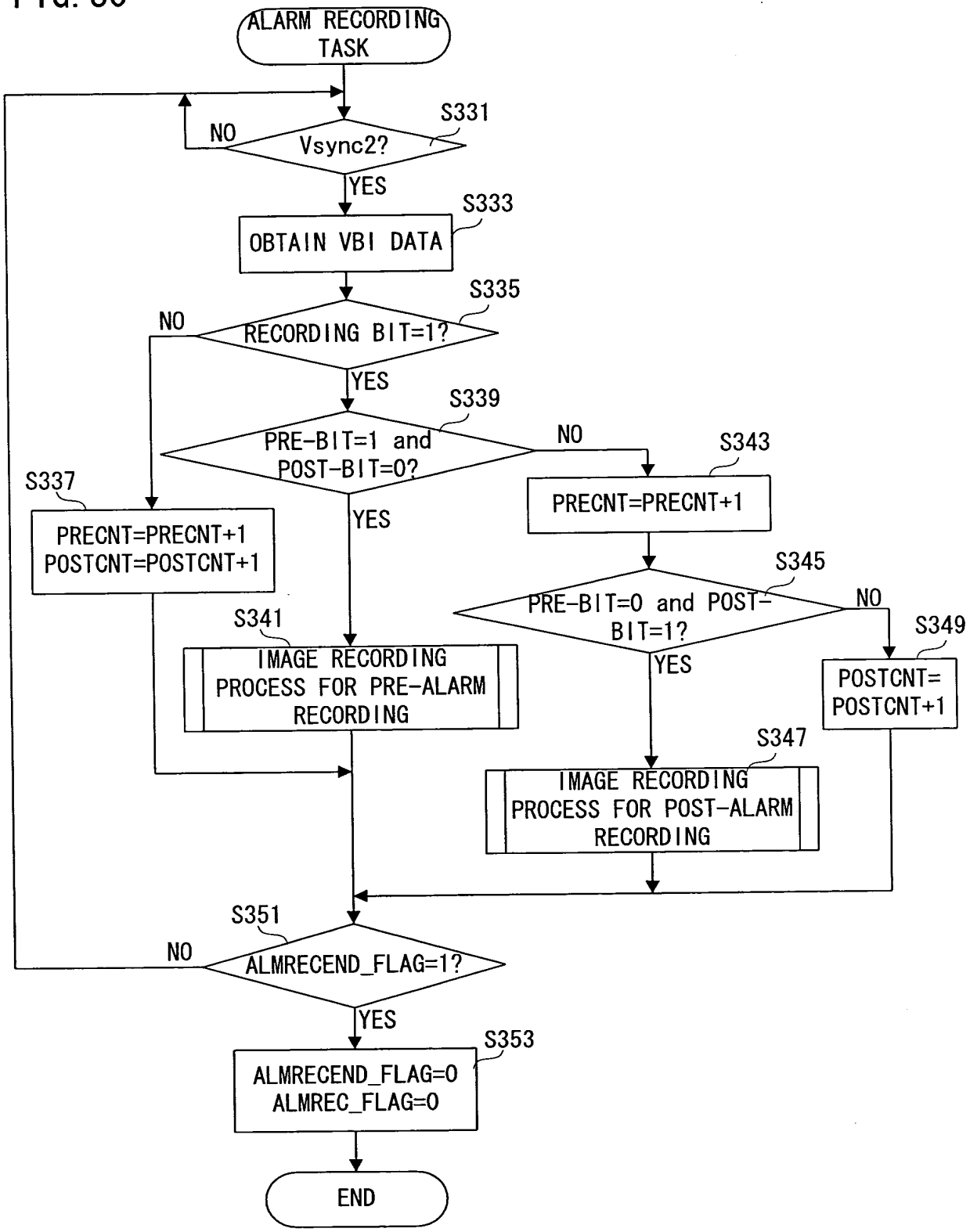

ALARM RECORDING TASK
S331
Vsync2?
NO
YES
S333
OBTAIN VBI DATA
S335
RECORDING BIT=1?
NO
YES
S339
PRE-BIT=1 and POST-BIT=0?
NO
YES
S337
PRECNT=PRECNT+1
POSTCNT=POSTCNT+1
S343
PRECNT=PRECNT+1
S345
PRE-BIT=0 and POST-BIT=1?
NO
YES
S349
POSTCNT=POSTCNT+1
S341
IMAGE RECORDING PROCESS FOR PRE-ALARM RECORDING
S347
IMAGE RECORDING PROCESS FOR POST-ALARM RECORDING
S351
ALMRECEND_FLAG=1?
NO
YES
S353
ALMRECEND_FLAG=0
ALMREC_FLAG=0
END

FIG. 31

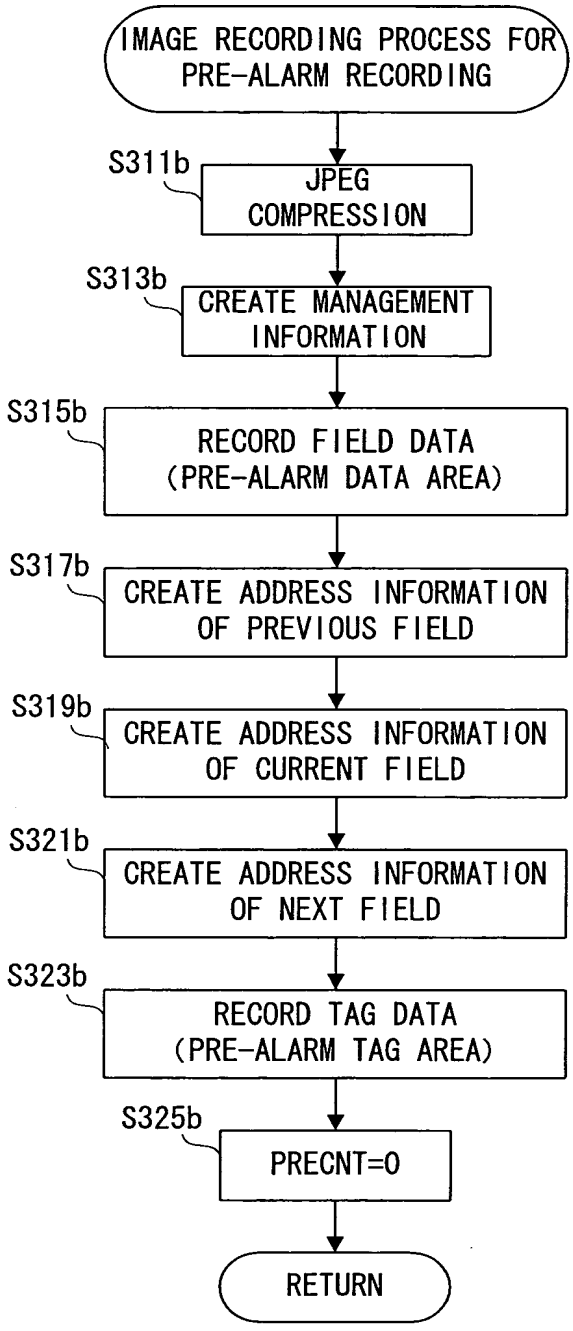


IMAGE RECORDING PROCESS FOR PRE-ALARM RECORDING
S311b
JPEG COMPRESSION
S313b
CREATE MANAGEMENT INFORMATION
S315b
RECORD FIELD DATA (PRE-ALARM DATA AREA)
S317b
CREATE ADDRESS INFORMATION OF PREVIOUS FIELD
S319b
CREATE ADDRESS INFORMATION OF CURRENT FIELD
S321b
CREATE ADDRESS INFORMATION OF NEXT FIELD
S323b
RECORD TAG DATA (PRE-ALARM TAG AREA)
S325b
PRECNT=0
RETURN

FIG. 32

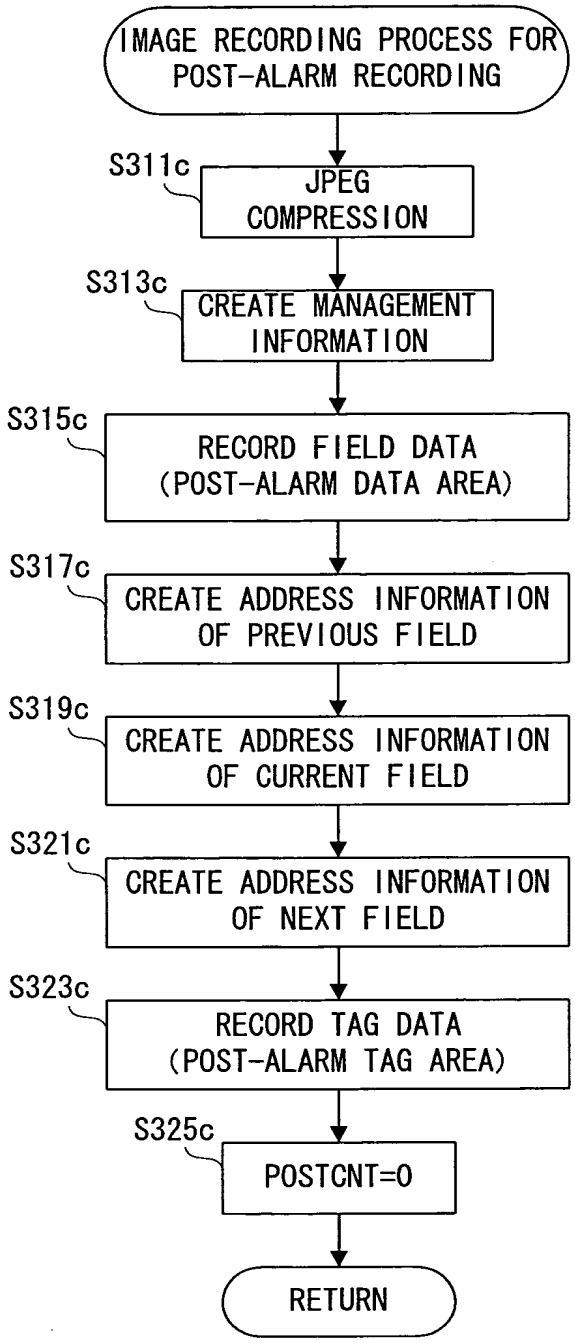


IMAGE RECORDING PROCESS FOR POST-ALARM RECORDING
S311c
JPEG COMPRESSION
S313c
CREATE MANAGEMENT INFORMATION
S315c
RECORD FIELD DATA (POST-ALARM DATA AREA)
S317c
CREATE ADDRESS INFORMATION OF PREVIOUS FIELD
S319c
CREATE ADDRESS INFORMATION OF CURRENT FIELD
S321c
CREATE ADDRESS INFORMATION OF NEXT FIELD
S323c
RECORD TAG DATA (POST-ALARM TAG AREA)
S325c
POSTCNT=0
RETURN

FIG. 33

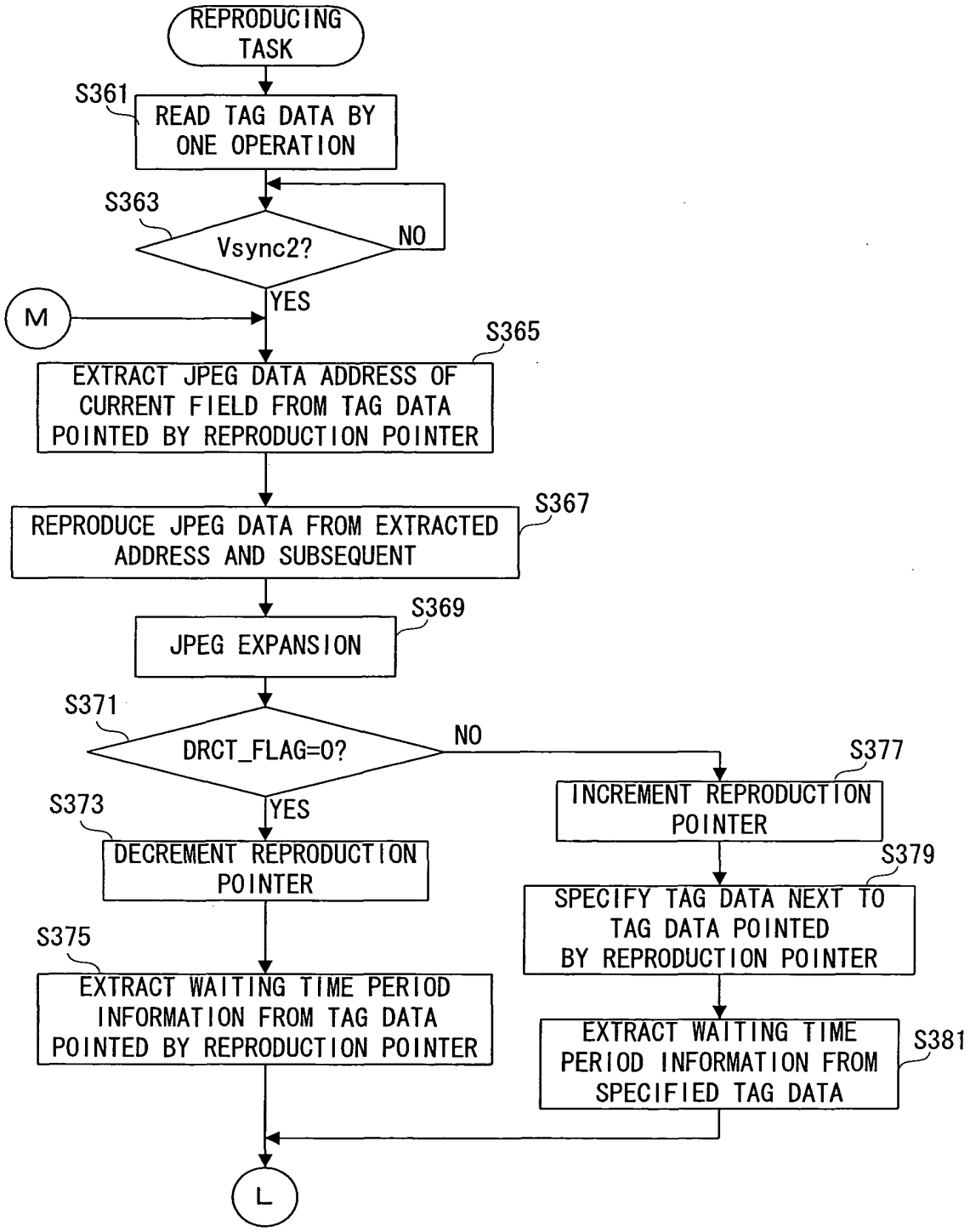
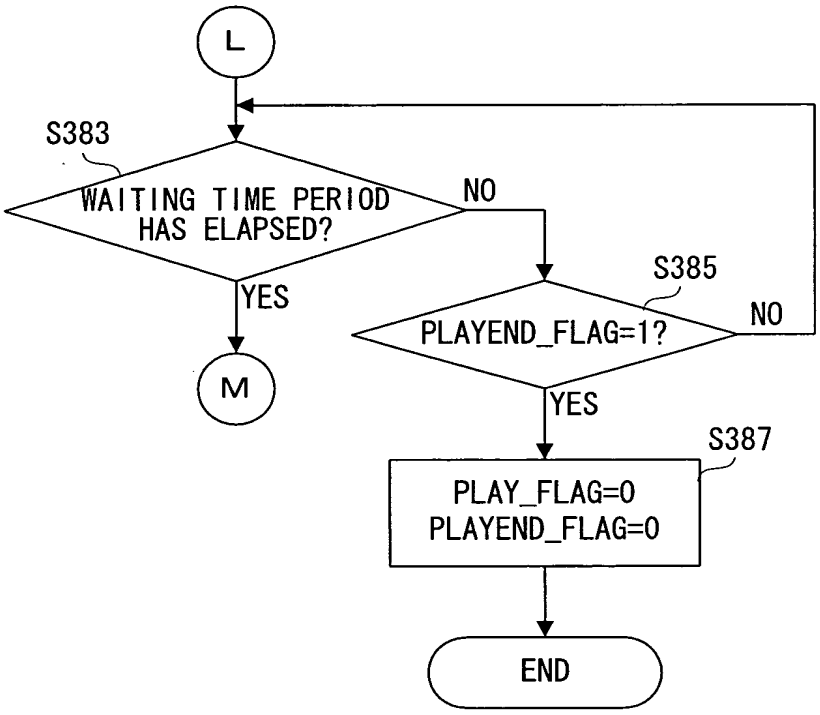

REPRODUCING TASK
S361
READ TAG DATA BY ONE OPERATION
S363
Vsync2?
NO
YES
M
S365
EXTRACT JPEG DATA ADDRESS OF CURRENT FIELD FROM TAG DATA POINTED BY REPRODUCTION POINTER
S367
REPRODUCE JPEG DATA FROM EXTRACTED ADDRESS AND SUBSEQUENT
S369
JPEG EXPANSION
S371
DRCT_FLAG=0?
NO
YES
S373
DECREMENT REPRODUCTION POINTER
S375
EXTRACT WAITING TIME PERIOD INFORMATION FROM TAG DATA POINTED BY REPRODUCTION POINTER
S377
INCREMENT REPRODUCTION POINTER
S379
SPECIFY TAG DATA NEXT TO TAG DATA POINTED BY REPRODUCTION POINTER
S381
EXTRACT WAITING TIME PERIOD INFORMATION FROM SPECIFIED TAG DATA
L

FIG. 34


L
S383
WAITING TIME PERIOD HAS ELAPSED?
NO
YES
M
S385
PLAYEND_FLAG=1?
NO
YES
S387
PLAY_FLAG=0
PLAYEND_FLAG=0
END